

No. 649,632.

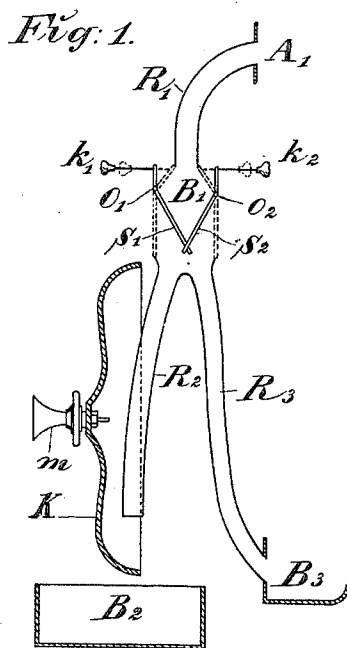
Patented May 15, 1900.

L. M. ERICSSON & S. RITTER.
AUTOMATIC TELEPHONE TOLL APPARATUS.

(Application filed June 2, 1898.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

J. W. Niman
Peter A. Ross

INVENTORS

Lars M. Ericsson
Sophus Ritter

BY

Henry Comstock
ATTORNEY

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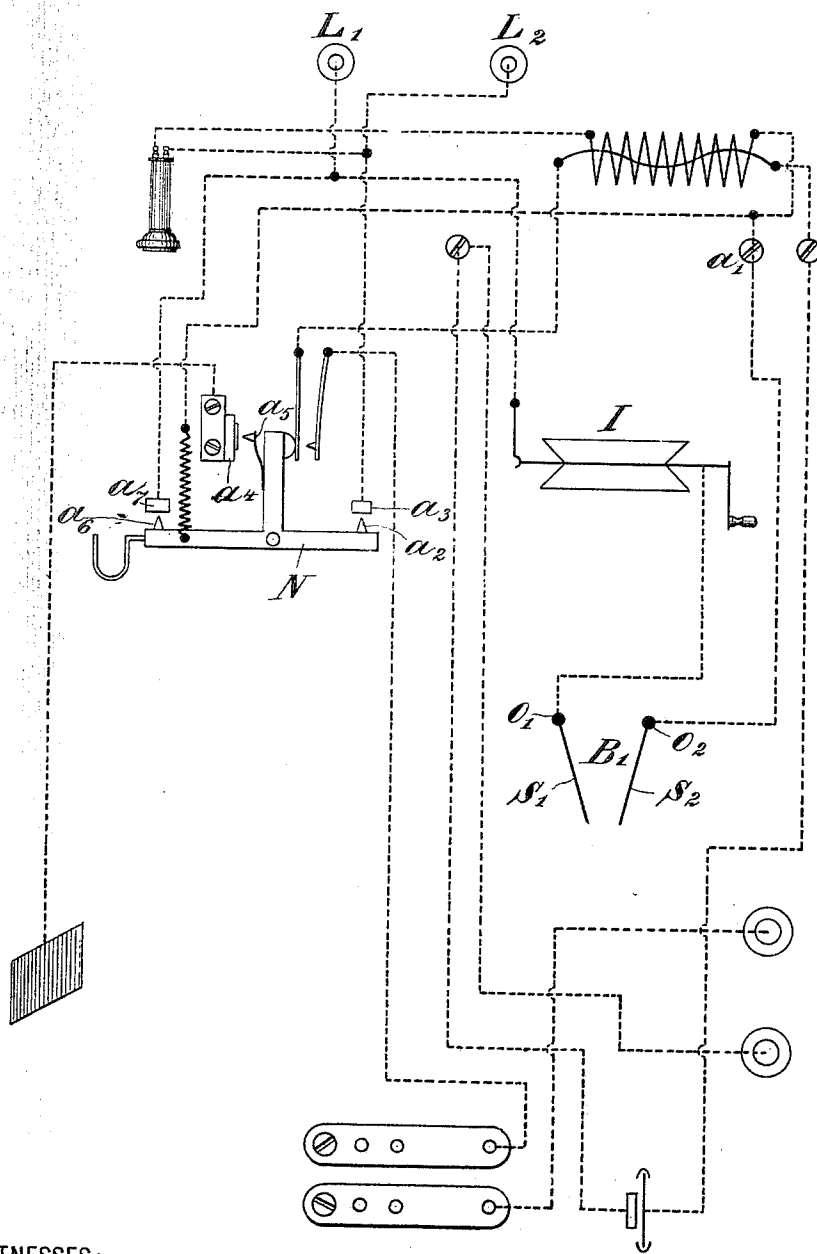
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Fig. 2.



WITNESSES:

L. H. Wiman
Peter A. Ross

INVENTORS

Lars M. Ericsson
Sophus Ritter

BY

Henry Combs
ATTORNEY

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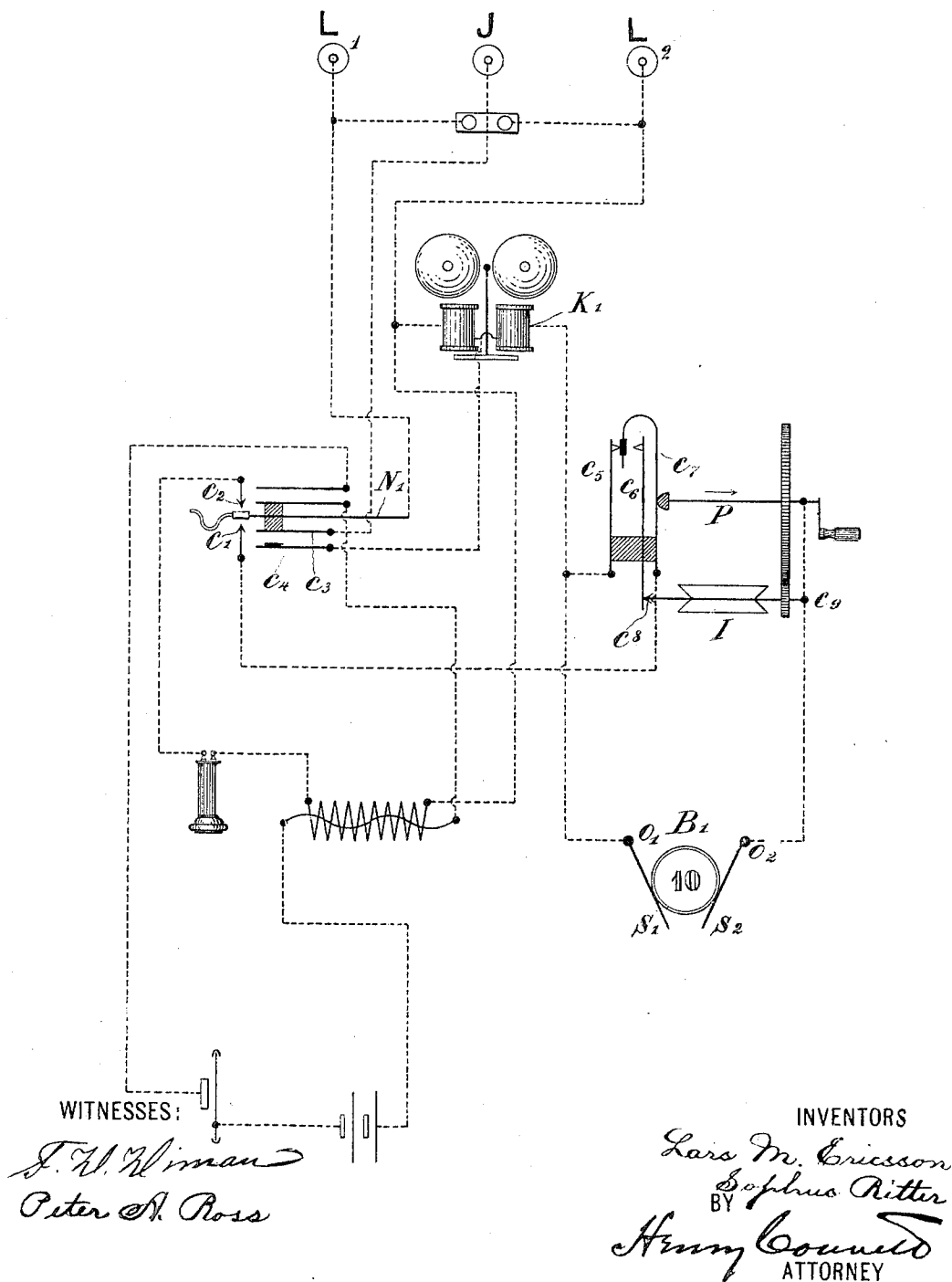
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Fig. 3.



UNITED STATES PATENT OFFICE.

LARS MAGNUS ERICSSON, OF STOCKHOLM, SWEDEN, AND SOPHUS RITTER, OF COPENHAGEN, DENMARK, ASSIGNORS TO THE AKTIEBOLAGET L. M. ERICSSON & CO., OF STOCKHOLM, SWEDEN.

AUTOMATIC TELEPHONE TOLL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 649,632, dated May 15, 1900.

Application filed June 2, 1898. Serial No. 682,323. (No model.)

To all whom it may concern:

Be it known that we, LARS MAGNUS ERICSSON, of Stockholm, Sweden, and SOPHUS RITTER, of Copenhagen, Denmark, have invented certain Improvements in Coin-Controlled Apparatus for Telephone Systems, of which the following is a specification.

This invention relates to a coin-controlled apparatus for use with a telephone system wherein the central office cannot be called until the fee for using the telephone shall have been put in the coin-pocket apparatus. When a response has been received to the effect that the connection asked for can be had, the fee is deposited in the cash-drawer by means operated by the payer. In dropping into the cash-drawer the coin strikes and sounds a gong or bell. The sound thus produced is transmitted by a microphone of the automatic apparatus to the operator at the central office, who will not connect the customer with the person called until he hears this sound of the bell. If the person called is engaged, the payer may recover the coin inserted by means which will be hereinafter explained. Thus the fee must be paid before the central office can be called, and the operator is not detained in case the fee is not ready at hand when the connection is to be made, and the fee may be recovered in case the desired connection cannot be effected.

Figure 1 is a sectional view of the apparatus, showing the coin-pocket, the two branch chutes leading therefrom, and the two terminals. Fig. 2 is a diagrammatic view showing the wire connections and other parts of a system for outgoing communications only. Fig. 3 is a diagrammatic view showing the apparatus and connections adapted for both outgoing and incoming connections.

Referring primarily to Fig. 1, a coin of the value predetermined is introduced through the slot A' into the chute R' and passes through the latter down into the coin-pocket B', which has the two hinged metal plates S' and S², which can turn on their fulcrums O' and O² and are insulated from each other. When the coin drops into the pocket B', it brings about metallic contact between S' and S² and

in this manner closes the circuit leading from the inductor I, Figs. 2 and 3, of the automatic apparatus to the central office, so that the latter can be called. When the telephone-operator has responded that the line wanted is clear, the user of the telephone presses the button k', thereby causing the plate S' to turn on its fulcrum O' and occupy the position indicated by the dotted line. The coin consequently slides down the chute R², strikes on the edge of the gong K, and finally falls into the cash-drawer B². The sound of gong K is transmitted by means of the microphone m of the automatic apparatus to the operator at the central office, who is thus able to ascertain whether the fee has been deposited in the cash-drawer. On the other hand, if the operator responds that the line is engaged the user presses the button k², and thus brings the plate S² into the dotted position on the right hand in Fig. 1. The coin now slides into the chute R³ and drops into the small receiver B³ at the outside of the apparatus.

The diagram of the wire connections of the automatic apparatus when adapted for outgoing communications only is shown in Fig. 2. When the apparatus is at rest, the telephone-receiver hangs on the lever N and the contact at a² and a³ is closed. One terminal of the inductor I is directly connected with the line L', while the line-circuit L² is open between the terminal plates S' and S². If a coin be deposited in the manner described above between the plates S' and S², the circuit of the inductor will be closed over O' S', the contact-screw a, the lever N, and the contact-pieces a² and a³ to the line L². The central office is now connected by means of the double line L' L² with the coin-controlled telephone apparatus, from which the office can consequently be called in the usual manner. When the receiver is subsequently lifted from the fork N, the contact will be interrupted at a² and a³ but closed at a⁶ and a⁷ and the apparatus will now occupy its speaking position. Conversation now takes place as in an ordinary telephone apparatus. As the ringing-off signal cannot be given by

means of the inductor on the conclusion of the conversation, the line L^2 is connected to the ground when the receiver is hung on the fork N by means of the contact-pieces a^4 and a^5 . Ringing off will then be performed automatically at the central office, which should be arranged according to the "ringing-through" system.

Fig. 3 shows the connections for an apparatus intended to be used for both outgoing and incoming communications. In the position of rest of the apparatus the lever N' bears against the contact-piece c' , and a signal from the central office will pass from the line L' through the lever N' and contact c' to the switch of the inductor, where it passes through the springs c^7 and c^5 to the balanced bell K' , and then out over the line L^2 to the exchange. When the exchange is to be called from the coin-controlled apparatus, the fee must have been deposited in the apparatus, as before. When the inductor-handle is rotated, the shaft P is shifted in the direction of the arrow and the current now passes from the left-hand terminal c^8 through the springs c^6 and c^7 to the contact c' , corresponding to rest, and the lever N' out over the line L' . From the right-hand terminal c^9 , on the other hand, connection is made over $O^2 S^2$, the coin, S' and O^2 with the bell K' and with the line L^2 . When conversation is going on, the apparatus operates in the same manner as that described with reference to Fig 2, the ringing-off, however, being slightly modified in that the ground connection of the line L^2 issues from the middle of the balanced bell K' . As before, it is closed automatically by means of the springs c^4 and c^3 when the receiver is hung up on the lever N' . The plates S' and S^2 may be any suitable form of metallic terminals in open circuit with

any point in the line, and by "gong" and "clock-bell" is herein meant any suitable form of bell or sounding annunciator.

Having thus described our invention, we claim—

1. An automatic coin-controlled apparatus for receiving charges for telephonic communications to a central office, having a coin-chute leading from the coin-slot to a coin-pocket, and branch coin-chutes leading from said coin-pocket, respectively, to a cash-drawer and to the outside, and said coin-pocket having two hinged terminal plates, adapted to be electrically connected by an inserted coin, and provided with means whereby the user or payer may deflect the coin into either of said branch chutes, substantially as set forth.

2. In a coin-controlled apparatus for telephone systems, the combination with a main coin-chute R' , connecting with the coin-slot at one end and with a coin-pocket B' at its other end, the said pocket, having in it hinged circuit-terminals S' and S^2 , the said terminals, being insulated from each other and adapted to arrest the coin, the pushes k' and k^2 , for operating said terminals, respectively, to deflect the coin, the branch chutes, R^2 and R^3 , leading from said coin-pocket, and the bell K , at the end of chute R^2 , substantially as set forth.

In witness whereof we have hereunto signed our names in the presence of subscribing witnesses.

LARS MAGNUS ERICSSON.
SOPHUS RITTER.

Witnesses as to Lars Magnus Ericsson:

S. ABILD,

P. HAMMARHJOLD.

Witnesses as to Sophus Ritter:

I. HOFMAN BANG,

JULES BLOM.